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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/813,265	03/31/2004	Chih-Chiang Cheng	33144-202379	5338

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EXAMINER

MCNELIS, KATHLEEN A

ART UNIT PAPER NUMBER

1742

DATE MAILED: 08/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	<b>Application No.</b> 10/813,265	<b>Applicant(s)</b> CHENG ET AL.	
	<b>Examiner</b> Kathleen A. McNelis	<b>Art Unit</b> 1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspond nce address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 31 March 2004.
- 2a) ☐ This action is **FINAL**.
- 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    - a) ☐ All   b) ☐ Some \* c) ☐ None of:
    - 1. ☐ Certified copies of the priority documents have been received.
    - 2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    - 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### **Claims Status**

Claims 1-14 are presented for examination.

### **Examiner's Comments**

Figures 1-3 contain numerous typographical errors (e.g. "Categoreing," "Devuce" and "Derce").

### **DETAILED ACTION**

#### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, it is unclear if the term "scale" in lines 8, 9 and 12 refers to relative size or type of residue. If this is expressing relative size as "dimension scale," the term does not further limit the size. If it is to further limit the type of residue, examiner refers applicant to the definition of "scale" on page 50 of the Metals Handbook as "surface oxidation, consisting of partially adherent layers of corrosion products, left on metals by heating or casting in air or in other oxidizing atmospheres" and suggests that perhaps the applicant intended to use the word "slag" (p. 53 of Metals Handbook) instead of "scale". The only place the word "scale" is used in the specification is in the abstract, which does not further clarify the intent of the claim. For

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examination purposes, this term has been ignored since it would not further limit “dimension” and since the specification does not suggest that the residue is scale in the sense of an oxidation residue.

In claim 1, it is unclear what “recollecting separately the separated and screened residue of large dimension scale” (lines 11-12) means. For examination purposes, examiner has assumed that the oversize material is reduced in size and returned to an earlier point in the process as disclosed in the paragraph bridging pages 4 and 5 of the specification.

***Claim Rejections - 35 USC § 102***

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Chinese patent 481,673 (CN ‘673)<sup>1</sup>.

With respect to claim 1, CN ‘673 discloses a method for washing furnace slag where the slag falls into water and is screened to different size fractions. The different size fractions are magnetically separated and removed from the water. Large slag (> 30 mm) is crushed, magnetically separated to remove iron, passed through a grinder and returned to the beginning of the process. Sand is precipitated from the water separately (abstract and Fig. 1). With respect to claim 2, the water scrubber has a water spraying system (abstract), which examiner contends is the same as a sprinkling system and cools the slag (residue) as it falls from the furnace. With respect to claims 3 and 4, the size groups are above 30 mm, between 12 and 30 mm, between 8 and 12 mm and below 8 mm (Fig. 1 and p. 12, 1<sup>st</sup> paragraph).

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<sup>1</sup> Based on USPTO translation into English

With respect to claims 5 and 6, lime powder is washed from the slag (abstract). With respect to claim 7, the water is recycled (p. 12, 2<sup>nd</sup> paragraph and Fig. 1). With respect to claims 8-14, a grinder is provided to refine the residue (abstract and Fig. 1).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over European Patent 0 785 028 (EP '028) in view of Japanese Patent 06-063690 (JP '690).<sup>2</sup>

EP '028 discloses a method for collecting waste material (slag) from a melting furnace (1), water quenching the molten slag in a water quenching granulator (3), sieving the particles (30), magnetic separation ((20); abstract, Fig. 1) where oversize non-magnetic particles (32) are crushed (70) and the crushed oversize particles are returned for magnetic separation and screening (col. 6 lines 14-56 and Fig. 3).

EP '028 does not disclose separating of a sand fraction.

With respect to claim 1, JP '690 discloses a method of utilizing slag as molding sand by cooling the tapped slag with water, granulation to dry, magnetic separation and pulverizing to between 0.07 and 0.85 mm grain sizes (abstract). It would have been obvious to one of ordinary skill in the art at the time the invention was made to separate a sand fraction as taught by JP '690 from the slag treatment process of EP '028 to effectively utilize slag which was previously discarded as taught by JP '690. With respect to claim 8, both EP '028 (Fig 3 (45) and col. 4 lines 33-35) and JP '690 (abstract, Fig. 1 steps 3 and 5) teach that a grinding device provides refinement of the residue.

Claims 2-7 and 9-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over European Patent 0 785 028 (EP '028) in view of Japanese Patent 06-063690 (JP '690)<sup>2</sup> as applied to claim 1 and further in view of JP 59-123706 (JP '706)<sup>3</sup>.

EP '028 in view of JP '690 is applied as discussed above regarding claim 1. Further, EP '028 teaches the use of two sieves (80) and (30). Sieve (80) separates materials into size fractions

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<sup>2</sup> Based on machine translation into English

<sup>3</sup> Based on USPTO translation into English

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from greater than and less than 30 mm (col. 7 lines 22-35) and downstream sieve (30) separates the slag into two fractions,  $> 8$  mm and  $< 8$  mm (col. 4 lines 13-24). One of ordinary skill in the art would therefore expect to obtain three size fractions from the process of EP '028:  $> 30$  mm, between 8 and 30 mm and below 8 mm.

EP '028 in view of JP '690 does not teach that water is sprinkled as in instant claim 2, that the residue between 8 and 30 mm is further separated into fractions of between 12 and 30 mm and between 8 and 12 mm as in instant claims 3 and 4 or that lime is washed from the residue as in instant claims 5-7.

JP '706 discloses a process for treating desulfurized lime slag to make effective use of the slag by cooling and drying to obtain a useful raw material for blast furnaces or sintering. JP '706 discloses spraying water onto the slag to cool and saturate the slag as in instant claim 2. With respect to claims 3 and 4, JP '706 discloses that a size fraction of 10-25 mm is collected for use as product (abstract), which overlaps with the claimed range of between 8 and 12 mm. It would have been obvious to one of ordinary skill in the art at the time the invention was made to collect the size fraction of between 10 and 25 mm as taught by JP '706 from the broader disclosed range of between 8 and 30 mm in EP '028 in view of JP '690 to provide a useful product as a raw material for sintering as taught by JP '706. With respect to claims 5-7, while EP '028 in view of JP '690 and JP '706 does not specifically disclose that lime is washed from the residue and mixed with water, it would be expected by one of ordinary skill in the art since EP '028 discloses dropping the slag into water and JP '706 discloses spraying as discussed above. With respect to claims 9-14, both EP '028 (Fig 3 (45) and col. 4 lines 33-35) and JP '690 (abstract, Fig. 1 steps 3 and 5) teach that a grinding device provides refinement of the residue.

*Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kathleen A. McNelis whose telephone number is 571 272 3554. The examiner can normally be reached on M-F 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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